

Wind for Schools



SUSTAINABLE SCHOOLS SYMPOSIUM

April 1, 2011

Illinois Green Governments Coordinating Council
Chicago High School for Agricultural Sciences

Matt Aldeman

Technical Assistant
Center for Renewable Energy
Illinois State University



**CENTER FOR
RENEWABLE ENERGY**
Illinois State University

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Illinois Institute for Rural Affairs at
Western Illinois University

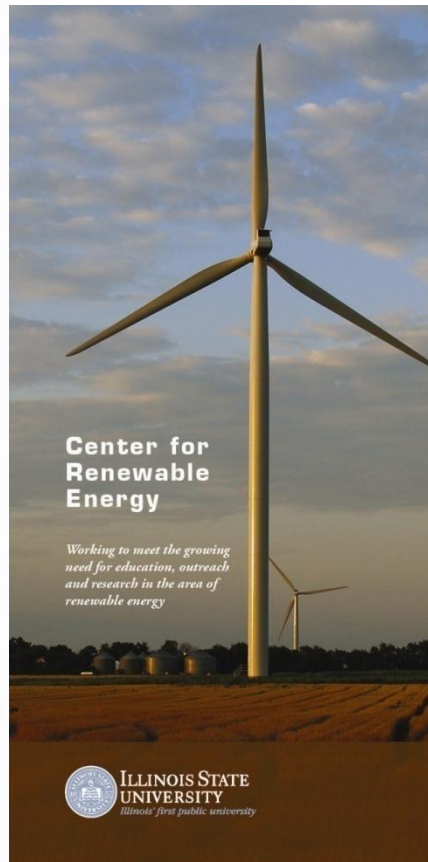


**WESTERN
ILLINOIS
UNIVERSITY**



CENTER FOR RENEWABLE ENERGY

Illinois State University



- ...works to meet the growing need for education, outreach and research in the area of renewable energy.
- Three major functional areas:
 - to enhance the renewable energy major at Illinois State University;
 - to serve the Illinois renewable energy community by providing information to the public;
 - to encourage applied research concerning renewable energy at Illinois State University and through collaborations with other universities.



CENTER FOR RENEWABLE ENERGY

Illinois State University

- Website: www.renewableenergy.ilstu.edu/wind/
- Administers the Illinois Wind Working Group (part of Wind Powering America – a DOE initiative)





...builds the capacity of community leaders and policymakers by providing technical support, applied research, policy evaluation, and training across the state. IIRA is a clearinghouse for information on rural issues, coordinates rural research, and works with state agencies on issues of importance to rural communities.

- Economic Development
- Community Development
- Health
- Housing
- Transportation
- Data Analysis
- Sustainable Development





IllinoisWind.org

A project of the Illinois Institute for Rural Affairs

[Home](#) [About Us](#) [Wind Monitoring Program](#) [Resource Maps](#) [Online Resources](#) [Publications](#) [Small Wind Turbines](#) [Links](#)

Illinois Wind is a website dedicated to information for Illinois residents interested in wind as a source of renewable energy.

News

- [Building the Wind Turbine Supply Chain Workshop - Oct 22](#)
Friday, September 11, 2009
- [Quinn Administration Announces Guidelines for State Energy Grants](#)
Monday, August 24, 2009
- [USDA accepting applications for Renewable Energy systems](#)
Tuesday, May 26, 2009
- [Advancing Wind Power in Illinois Conference - July 15th & 16th, 2009](#)
Wednesday, May 13, 2009
- [AWEA WINDPOWER 2009 in Chicago](#)
Monday, April 13, 2009
- Click [here](#) to read all news items



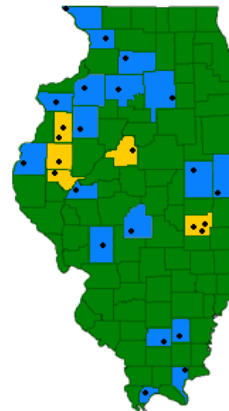
Wind Site Selection Tool

This is an interactive GIS mapping tool for identifying optimal wind turbine locations in the state of Illinois. Information on infrastructure, wind resources and zoning can be viewed on a map in any combination with most of the layers appearing at a 950,000 scale (about a 3 county area). Additional detail or attributes are available on certain map layers covering such items as contact information. Funded by the Illinois Clean Energy Community Foundation.

Wind Monitoring Program

Funded by the Illinois Clean Energy Community Foundation

[View Wind Maps](#)



View County Data

Bureau Co.

Monitoring Status

Current Sites
 Former Sites

Illinois Wind
Phone: 800/526-9943
Fax: 309/298-2142
E-mail: EC-Wherley@wiu.edu

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- News
- Wind Monitoring Program
- Resource Maps
- Online Resources
- Publications
- Small Wind Turbines
- Links
- Wind Site Selection Tool



Brief History: WfS

www.windpoweringamerica.gov



- Started as Wind Powering America (WPA) pilot project in 2005 in Colorado – resulted in one turbine
- Since then, added 10 more states
- Currently: AK, AZ, CO, ID, KS, MT, NC, NE, PA, SD, VA (added 2010)
- Plan is to continue adding states if federal funding allows



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WfS Goals



- Engage rural school teachers and students in wind energy
- Educate college students in wind energy applications, which will equip engineers for the growing U.S. wind industry
- Introduce wind energy to rural communities, initiating a discussion of wind energy's benefits and challenges



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Wind Powering America

IL WfS Background

www.windpoweringamerica.gov



- WIU and ISU applied for funding Fall 2009
- Illinois DCEO agreed to supply matching funds (requirement for WPA application)
- Application was not accepted by WPA
- Illinois DCEO agreed to proceed with WfS program with or without federal support
- Plan to re-apply at next opportunity to WPA (federal money allows for increased scope)



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WfS Structure



- Wind Application Center (WAC) established at universities
- College students serve as consultants – assisting in assessment and installation



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UNIVERSITY



Illinois Wind Application Center



WESTERN
ILLINOIS
UNIVERSITY

WAC Host
Institution



Core
Partner



State
Facilitator



Illinois Clean Energy
community foundation



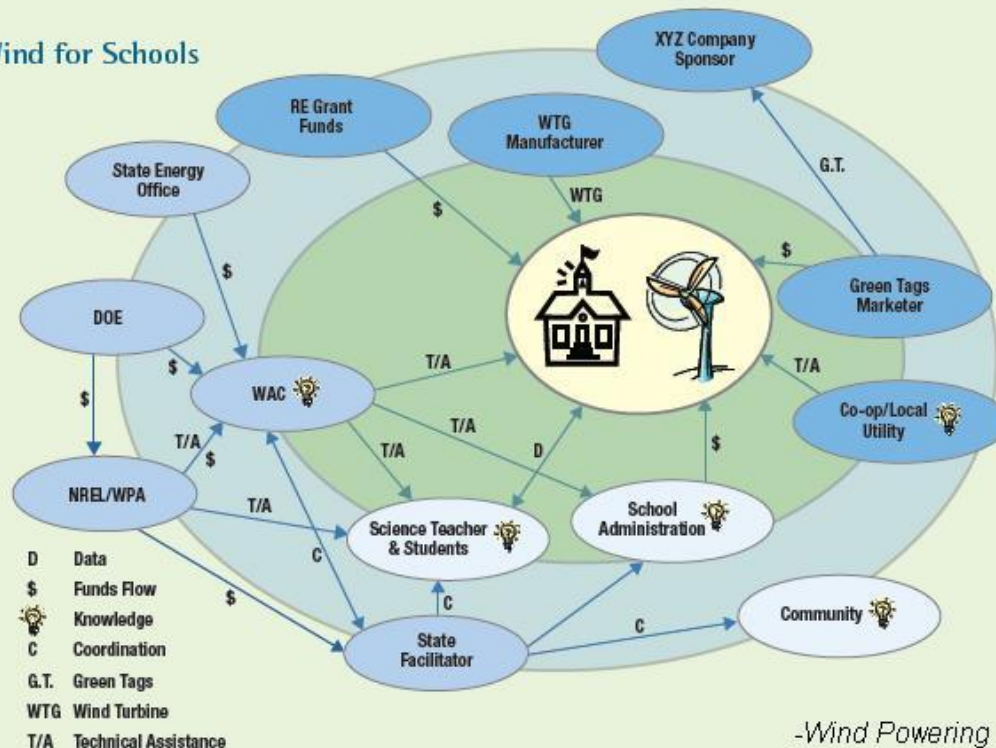
Prospective Funders

WfS Stakeholders

www.windpoweringamerica.gov



Wind for Schools



-Wind Powering America



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WfS Approach

www.windpoweringamerica.gov



- Curriculum development
 - Science
 - Energy
 - Wind Energy
- Teacher training
- Hands-on curricula: classroom instruction, met tower data, small wind turbine



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SkyStream 3.7 Wind Turbine



<http://www.skystreamenergy.com/skystream-info/productphotos.php>



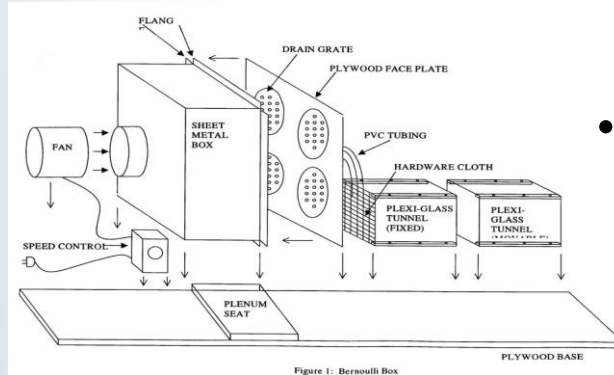
<http://www.msichicago.org/whats-here/exhibits/smart-home/>

- To be located at WIU, site to be determined
- Incorporated in education and outreach events
- Demonstration resource for WIU community and visiting K-12 faculty and students



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Wind Tunnel Program



- Table top models (left) provided to classrooms

- WIU Robotics Lab Wind Tunnel (right) for Summer Teacher Institutes and WIU student testing



2010-2011 Met Tower Sites

- Wilmington SD 209-U
- CUSD #3, Fulton County (Cuba)
- SIUE

Data available at
www.illinoiswind.org

Future Students | International Students | Parents & Family | Online Learning | S

SOUTHERN ILLINOIS UNIVERSITY EDWARDSVILLE

WESTERN ILLINOIS UNIVERSITY
MACOMB CAMPUS

ACADEMICS | ADMISSIONS | ALUMNI | ARTS | ATHLETICS | GIVING

UNIVERSITY RELATIONS | [WIU Home](#) > [News](#) > [IIRA At WIU Sponsoring Wind - Monitoring Program At SIUE](#)

News Links ▶ [IIRA at WIU Sponsoring Wind-Monitoring Program at SIUE](#)
November 19, 2010

FREE PRESS NEWSPAPERS ADVOCATE COURANT JOURNAL SHOPPER

Meteorological tower erected at high school
Data collection is prerequisite for wind turbine

Pam Monson
Editor

Tuesday, October 19, 2010

School District 209-U is exploring the possibility of generating electrical power for its schools with a wind turbine.

The Board of Education approved a lease-grant agreement with the Illinois Institute for Rural Affairs (IIRA) at Western Illinois University on Sept. 13 for a meteorological (MET) tower.

The 197-foot (60-meter) tall tower was erected in the field in front of the high school Tuesday, creating a test site for monitoring wind velocity. Best of all, it won't cost the district a thing.

"It's either going to tell us, no we shouldn't have any interest in a turbine, or ... which size turbine will be beneficial," explained district finance manager Larry Macari.

"There is no question we want to eventually build a turbine to power our schools," added superintendent Jay Plese. The MET tower is step one in the district's research.

The Value-Added Sustainable Development Center, a unit of IIRA, works with schools, farmer and rural electric cooperatives, municipalities and others in exploring the wind potential in their locales.

According to Jolene Willis, wind-energy program assistant at the center, Wilmington's Board of Education has committed the district to becoming a more environmentally conscious member of the community in an effort to reduce its \$250,000 annual electric bill.



WORKERS FROM Pioneer Wind Works Meteorological Tower Services, of LaFarge, WI, worked Monday and Tuesday to erect a meteorological tower near Wilmington High School. The tower will collect wind data for the next 12 to 14 months to determine if the site can support a wind turbine. The proposed turbine would generate electric for the school district.

Future Students | International Students | Parents & Family | Online Learning | Social Networking

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UNIVERSITY RELATIONS | [WIU Home](#) > [News](#) > [Cuba High School Site For Wind - Velocity Test](#)
November 18, 2010

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MACOMB, IL -- The Illinois Institute for Rural Affairs (IIRA) is pleased to begin the next phase of the wind-velocity test site at Cuba High School, School District #3, Fulton County. Willis, wind-energy program assistant at IIRA's Value-Added Sustainable Development Center, a unit of IIRA, works with schools, farmer and rural electric cooperatives, municipalities and others in exploring the wind potential in their locales.



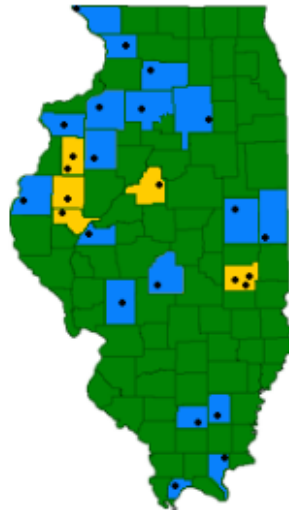
Wilmington High School



Knowing Your Wind Resource

Wind Monitoring Program
Funded by the Illinois Clean Energy
Community Foundation

[View Wind Maps](#)



View County Data

Bureau Co. ▼

Go

Monitoring Status

Current Sites

Former Sites



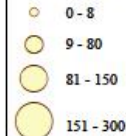
Illinois Clean Energy
community foundation



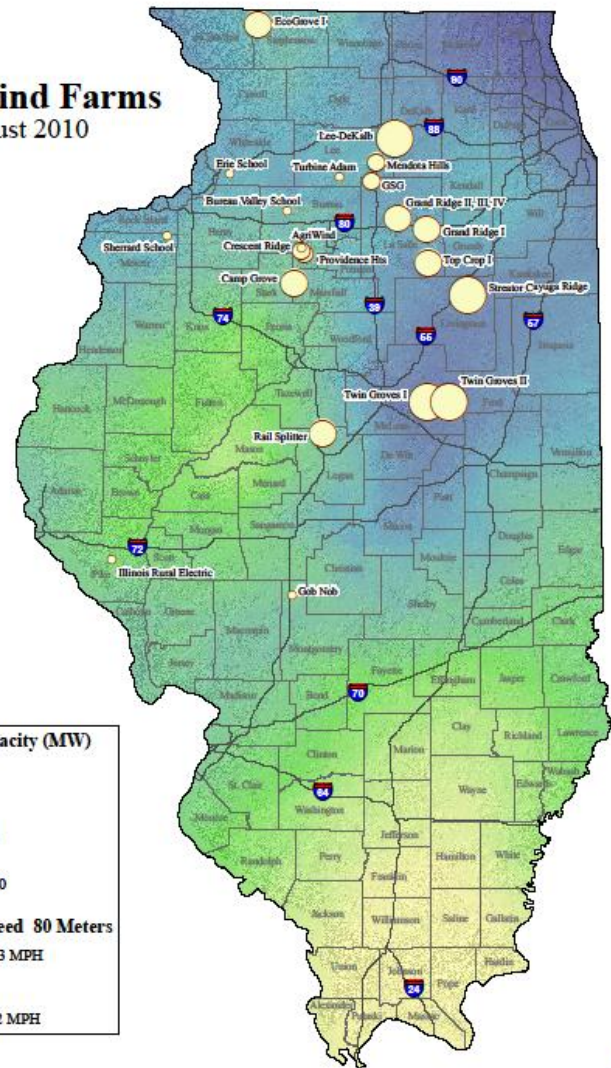
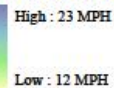
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Illinois Wind Farms
August 2010

Installed Capacity (MW)



Avg Wind Speed 80 Meters



0 25 50 100 Miles



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ENERGY ASSOCIATION

IIRA: Wind Energy Site Selection Tool

www.illinoiswind.org

Help!!



Enter address:

Find!

Choose Address Search Type:

☐ Find Address using Search☐ Click To Find Address on Map

- ☒ Imagery With Labels
- ☐ 2010 Aerial Images
- ☐ NEXRAD Radar
- ☐ Wind Ordinance Status
- ☐ Hillshade and Elevation
- ☐ Wind Speeds MPH
- ☒ Counties State
- ☐ Cell Towers
- ☐ FCC Towers
- ☐ Natural Gas Pipelines
- ☐ Power Plants
- ☐ Substations
- ☐ Transmission Lines
- ☒ Industrial Turbines
- ☐ Wind Farm Status
- ☒ Illinois MET Towers
- ☐ Wind Supply Chain Firms (ELPC)

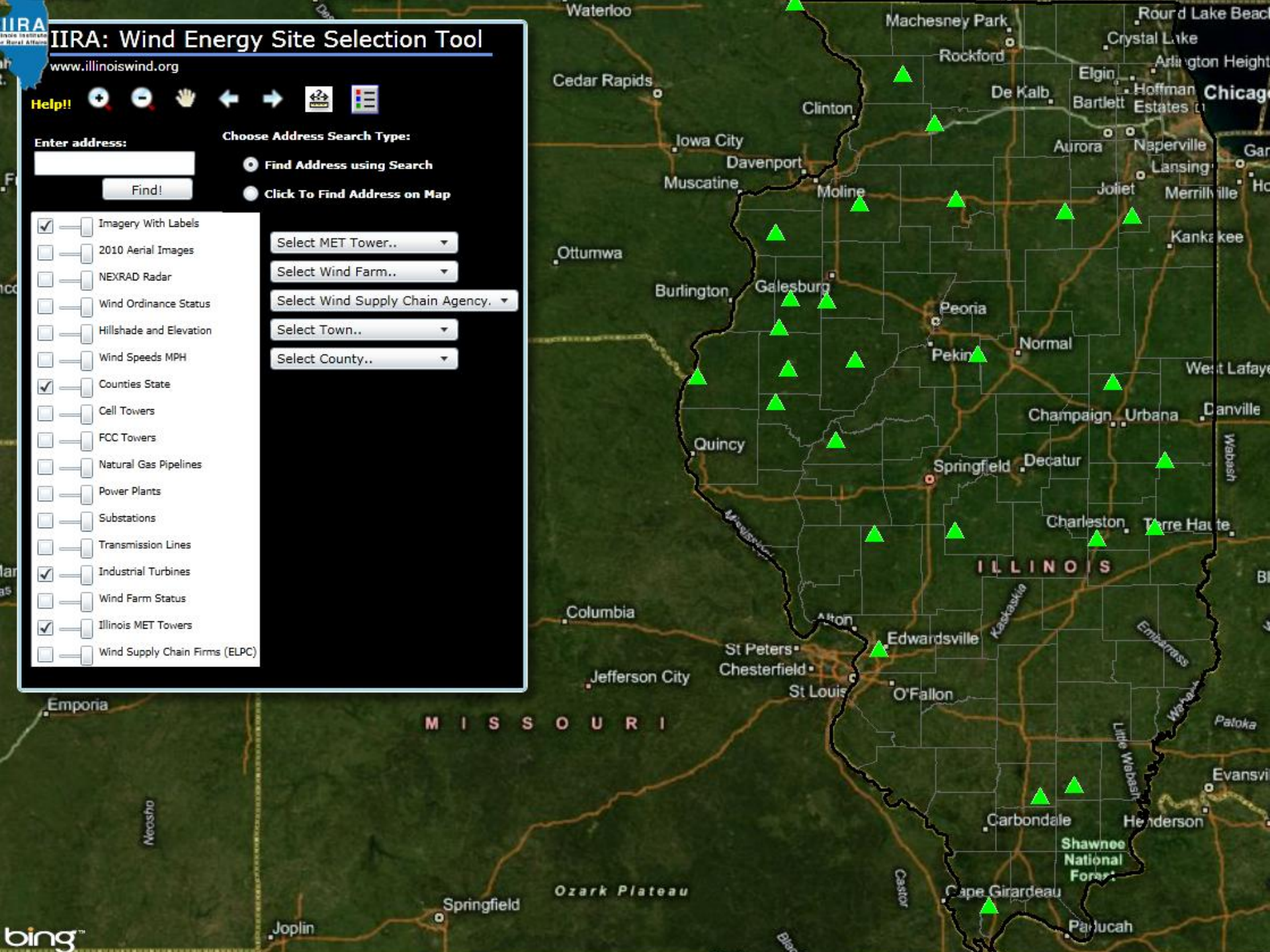
Select MET Tower..

Select Wind Farm..

Select Wind Supply Chain Agency..

Select Town..

Select County..



WfS Next Steps



- Waiting for state funding approval
- Developing school application & determining selection criteria
- Curriculum/Workshop Development
- Please sign up for future updates if interested



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